

NITRD Frontiers of Visualization

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Who are you and what are you doing with visualization?

Background: Computer scientist/applied math; studied and/or worked at Stony Brook, Sandia, LLNL, IBM, AT&T, Utah, currently professor at NYU.

Prior Work: Visualization algorithms & representations; toolkits & systems (e.g., VisTrails, BirdVis, DEFOG, PedVis, UV-CDAT, HyperFlow, HAVS); and visualization evaluation (correctness & effectiveness).

Current Focus: Urban Data Analysis & Climate Data Analysis

What are you passionate about?

Substantially improve “users” (scientists, for the most part) productivity in data-driven discovery by designing tools (including software, methods, and new concepts) that help them explore and better understand their data.

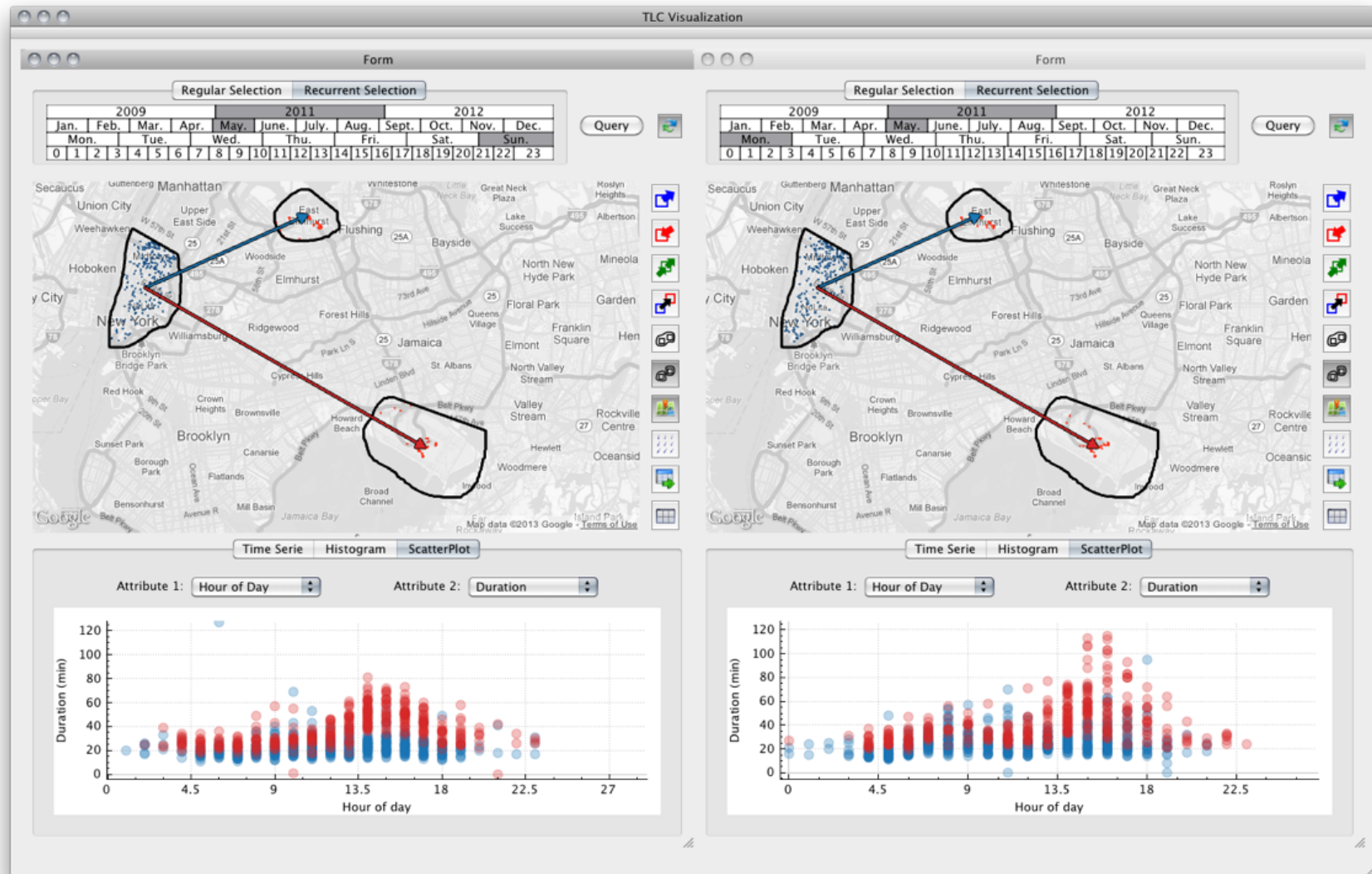
What are your current challenges in your work?

- Improve usability of data analysis tools so that they can be “used” by scientists; the community has created too many tools that only visualization researchers are able to use.
- Ensure correctness & effectiveness of techniques and implementations; see T. Etienne’s [2013] & E. Anderson’s [2012] PhD theses.
- Integrate of visualization techniques with other areas needed for analytics, notably data management and machine learning.
- Develop sustainable, usable, and open software.

What is on your wish list?

- “Move the needle” on Urban Data Analysis (challenges include: spatial-temporal, diverse data sets, different scales, dimensionality, etc).
- Enable reproducible data-driven discovery.
- Educate scientists (and also citizens) on the use of data analysis and visualization techniques.
- Contribute to open-source, widely-used tools for supporting the analytics process.

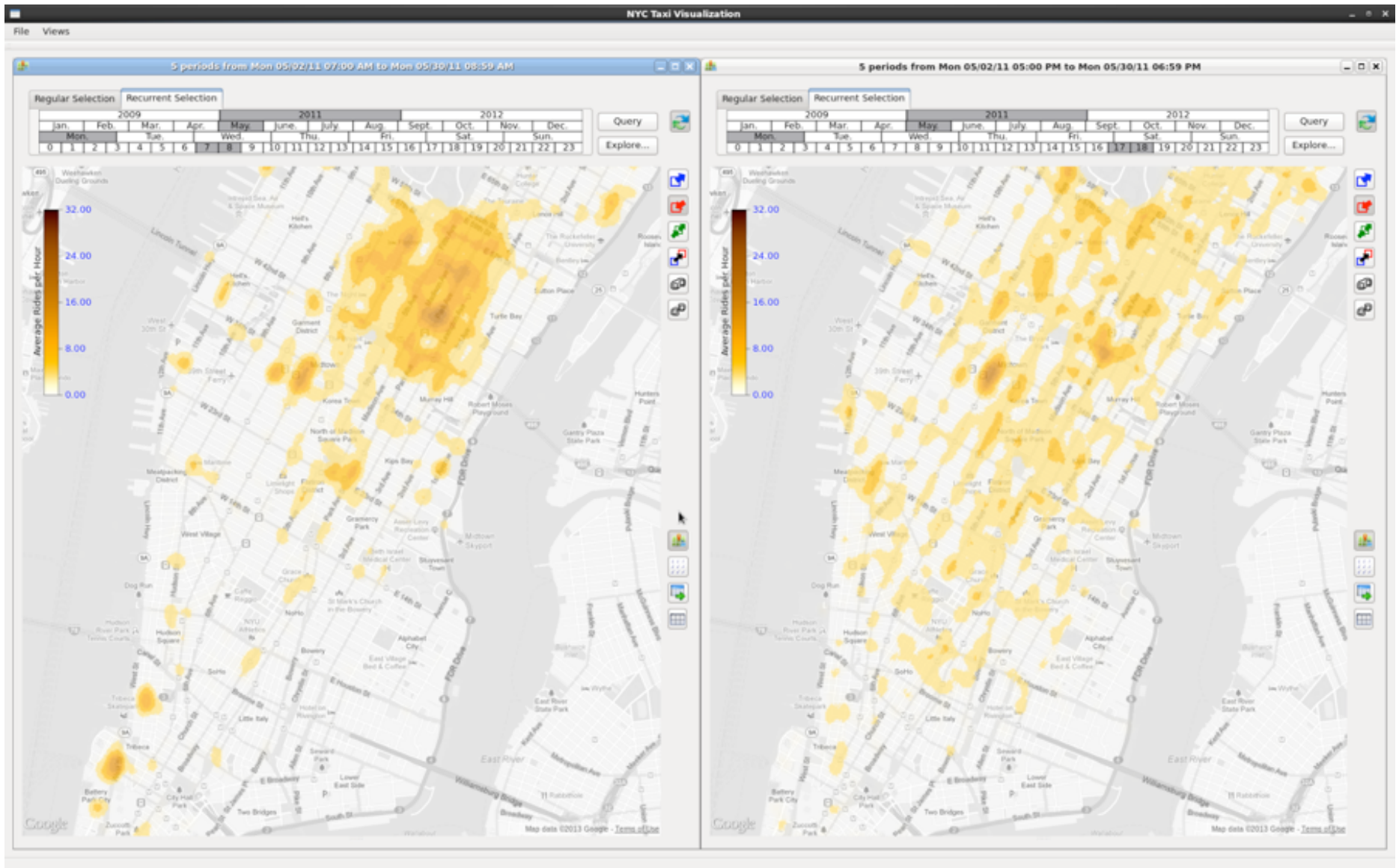
Interactive Visual Exploration of NYC Taxi Records



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Dropoffs Before vs. After Work



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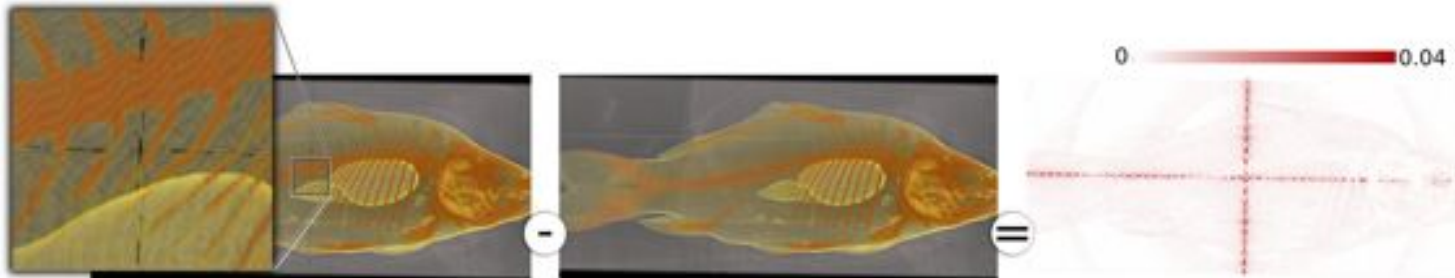
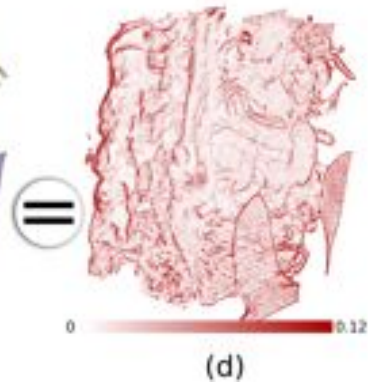
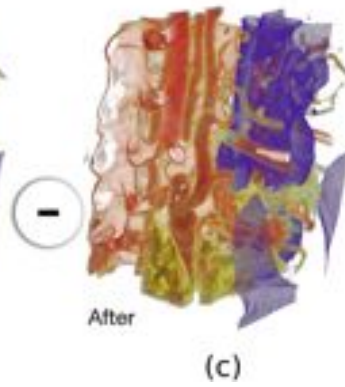
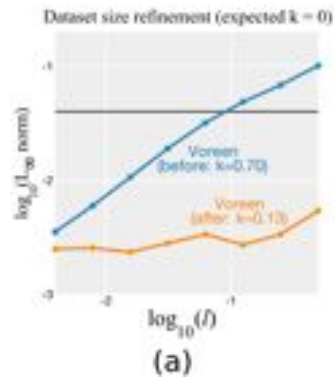
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TOWARDS THE THEORY AND PRACTICE OF VERIFYING VISUALIZATIONS

Tiago Etienne

Doctor of Philosophy

The University of Utah



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Packing Experiments for Sharing and Publication

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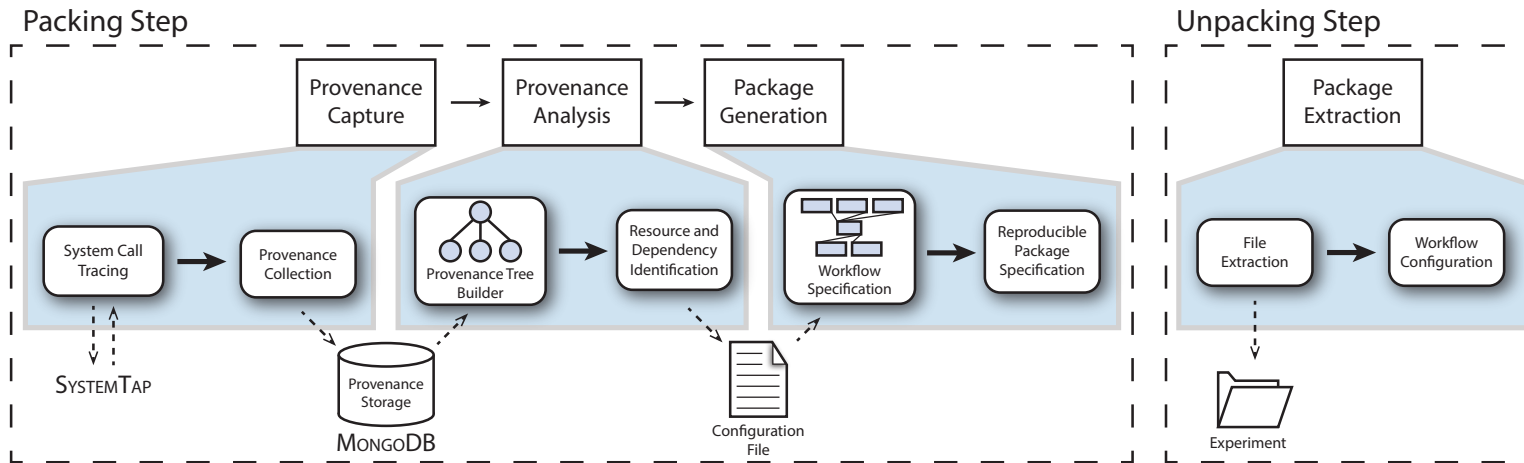


Figure 1: Architecture of ReproZip.

